Trans-Lake Washington Project EIS Methodology Report – 6/10/02

Fish Resources

This methodology report focuses on assessing the potential impacts of the Trans-Lake Washington Project on fish resources. These resources include resident and anadromous fish species, including the two salmonid species (chinook salmon and bull trout) listed as threatened under the Endangered Species Act (ESA).

Guiding Plans and Policies

- The Endangered Species Act
- U.S. Corps of Engineers Section 10/404 (DA Permit) policies
- Washington Department of Fish and Wildlife Hydraulic Permit Approval policies
- Washington State Department of Transportation (WSDOT), ESA, Transportation and Development, Assessing Indirect Effects, Guidance Paper, May 2001
- Magnuson-Stevens Act: PL 104-297, October 11, 1996, as amended
- Coastal Zone Management Act
- Washington State Department of Ecology (Ecology) Clean Water Act (WAC 173-201A) and the Stormwater Management Manual for Western Washington (2001)
- Shoreline management regulations (Shoreline Substantial Development Permit) and critical/sensitive areas ordinances (CAOs) for Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, and Redmond
- King County stream survey methods and guidelines, 1991
- Tribal treaty rights
- WSDOT Environmental Procedures Manual, Section 436, July 2001.
- The Fish and Wildlife Coordination Act
- A Framework to Assist in Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Bull Trout Sub-population Watershed Scale (USFWS, Feb 1998)

Data Needs and Sources

- The most recent aerial photographs available will be overlaid with major project components. The project team will provide aerial photographs.

- GIS base maps showing existing locations of streams, lakes, wetlands, buffers, Federal Emergency Management Agency (FEMA) 100-year floodplains and floodways, culverts, and subbasin and watershed boundaries (where available) in Seattle, Medina, Hunts Point, Yarrow Point, Clyde Hill, Kirkland, Bellevue, Redmond, and King County.
- Locations of Shorelines of Statewide Significance.
- Cut, fill, and edge of pavement lines for each proposed alternative. The team will provide these data in GIS format so that it will overlay with streams, lakes and buffer maps.
- Descriptions of the physical characteristics of each proposed alternative at shoreline and water crossing locations, along with descriptions of riparian areas potentially disturbed or altered by construction. General information concerning construction methods, including staging laydown sites potentially affecting aquatic and riparian areas. These descriptions will be provided by the design team.
- Natural resource information describing the fish and related resources of the Lake Washington watershed potentially impacted by any aspect of the proposed alternatives. The information will be derived from a combination of published and unpublished literature, together with recent data that can be obtained directly from agency representatives.
- Habitat survey data obtained previously during the initial screening phase of the Trans-Lake Washington Project, from site inspections at shoreline crossings, riparian areas, and wetlands along the SR 520 corridor. Field reconnaissance activities will be conducted to supplement and update existing fish resource information to produce a general characterization of the stream crossing areas. This characterization will include descriptions of stream buffers and riparian vegetation, stream bank stability, instream habitat and cover availability, substrate composition, and fish passage obstructions.
- The fish resources impact analysis will be based in part on a review of the project impacts reported in other environmental analyses prepared for the EIS. Consequently, portions of this analysis cannot be completed until the impacts and mitigation for other disciplines have been identified. Key disciplines for review include water resources, recreation, Section 4(f) & 6(f) resources, and land use-.
- Descriptions of existing and proposed stormwater detention and treatment facilities, including receiving waters, along with estimated changes in the quantity and quality

Proposed Coordination with Agencies

Agencies will be contacted to obtain information on natural resources of the Lake Washington watershed and its tributary streams crossed by the proposed alternatives. Telephone contacts and direct meetings with resource agency staff will occur to supplement information obtained from published documents. These agencies will include:

- City of Seattle, Public Utilities
- City of Bellevue, Public Works Department, Planning Department
- City of Redmond, Public Works Department, Planning Department

- King County, Department of Natural Resources, Parks Department
- Washington Department of Fish and Wildlife
- National Marine Fisheries Service
- U. S. Fish and Wildlife Service
- Muckleshoot Tribe

Proposed Coordination with Team, WSDOT, and Sound Transit

The fisheries staff will coordinate with the team leads of the other biological disciplines (vegetation and wildlife and wetlands) and water resources. The fisheries staff will work with the leaders of the water resources team to obtain relevant information on potential impacts to related habitat. The fish resources analysis will identify and incorporate preliminary impact assessments from this information. Upon completion of these other water resource analyses, the fish resources impact assessments will be modified as necessary.

The fisheries resource team will also work with the design team to identify characteristics of the proposed alternatives that potentially have impacts on fish habitat. This will include identification of options that may avoid, minimize, or mitigate for impacts on fish habitat resources.

The following input will be required from the internal consultant discipline leads:

- Water Resources – location of construction dewatering, infiltration, and discharge points; applicable standards for stormwater detention, treatment, and discharge best management practices (BMPs); and the quantity and quality of treated runoff to evaluate temporary construction and long-term operational impacts
- Vegetation and Wildlife – identification of impacts related to fish habitat
- Hazardous Materials– location of contaminated soils that could be disturbed during construction activities to evaluate the potential for temporary water quality and fish impacts
- Design team – construction methods, timing and duration, as well as cut-and-fill lines and edge of pavement lines provided in a GIS format to evaluate potential construction and operational impacts of each alternative

Study Area

The biological impact analysis will focus on aquatic, riparian, and migration corridor habitat directly adjacent to or downstream of the SR 520 corridor. The areas directly adjacent to the migratory corridor include:

- Lake Washington Ship Canal
- Lake Washington (particularly shorelines)
- Kelsey Creek and tributaries
- Yarrow Creek
- Sammamish River
- Bear Creek

Affected Environment Methodology

The environmental analysis will document the fish habitat attributes that occur in Lake Washington, at stream crossings along the SR 520 corridor, and along the Ship Canal. This documentation will involve review of existing information, together with site inspections by a fisheries biologist, to identify the habitat attributes.

The evaluation will assess the existing conditions of aquatic and riparian areas in and adjacent to the SR 520 corridor. This evaluation will include a review of existing information, consultation with local resource agency and tribal personnel, and field reconnaissance. Existing information will provide documentation of fish species known or expected to occur in the area. Consultation with biologists from Washington Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the Muckleshoot Tribe, along with a review of available information concerning fish usage of the streams, will assist in identifying potential impacts on these resources.

Field reconnaissance will be used to supplement and update existing fish resource information. Although extensive or detailed investigations will not be conducted, a general characterization will be made near the stream crossings. This characterization will include descriptions of stream buffers and riparian vegetation, stream bank stability, water quality, instream habitat and cover availability, substrate composition, and fish passage obstructions within about 500 feet of the stream crossing (assuming permission for access is obtained), and potentially affected portions of Bear Creek. Although these descriptions will focus primarily on characteristics in the immediate SR 520 corridor, an overall description of the watershed will also be developed. These procedures will generally follow the current King County Level I (Basic) stream survey methods and guidelines. Photographs will be taken of all stream crossings, as well as stream channel and riparian areas within 500 feet of the crossing (subject to access availability), and potentially affected areas of Bear Creek. Of particular interest would be specific areas of existing habitat degradation or fish passage barriers that might provide mitigation opportunities.

Information on existing or potential fish usage will also be collected. Fish usage information will consist of existing data, visual sightings of fish in the creeks, and spot-checking with a backpack-electroshocking unit (assuming sampling permits can be obtained from the appropriate fish agencies). Potential fish use will also be evaluated through assessment of specific habitat features (e.g., spawning habitat) or by the identification of fish barriers or other physical factors that might limit use by particular fish species.

Environmental Consequences Analysis Methodology

The environmental consequences analysis will assess potential direct and general construction effects of the project alternatives on fish resources within and downstream of the study area.

Field reconnaissance descriptions of existing fish habitat will be used to identify sensitive areas that should be avoided or protected during the construction process, as well as areas that might be affected by long-term impacts associated with project operation. The descriptions will also identify existing problems or factors that limit fish resources in the area that might be exacerbated by construction activities and long-term project-related

impacts (e.g., accelerated erosion processes caused by increased runoff from developed areas).

Direct Impacts

Direct impacts on fish resources will identify impacts resulting from physical disruptions. This includes loss of habitat or habitat function because of fill, excavation, or disturbances within the FEMA 100-year floodplain or floodway. These impacts include alterations or disturbances to the stream channel, shorelines, or riparian vegetation, as well as the installation, extension, or replacement of culverts. Project maps and the footprint of the alternatives will be used to assess the potential effects of the Trans-Lake Washington Project on the stream, shoreline, or floodplain habitats. Potential changes to stream hydrology, water quality (including temperature), and quantity (as they relate to direct effects of fish resources) will also be qualitatively evaluated.

Construction Impacts

Short-term construction impacts on aquatic and riparian resources will be qualitatively analyzed based on conceptual design. Fish usage information will determine the appropriate in-water construction timing schedules to avoid or minimize impacts on fish stocks.

Mitigation Measure Methodology

The mitigation evaluation will identify measures to avoid, minimize, and compensate for impacts on protected fish resources. Mitigation for water quality / quantity impacts will include the application of appropriate detention and treatment BMPs (see Water Resources Methodology Report). Mitigation measures will be developed for any potential adverse environmental impacts on fish resources that cannot be avoided. Mitigation for shoreline and stream habitat impacts will focus on maintaining or restoring properly functioning habitat, replanting riparian vegetation, and other appropriate habitat enhancements .

Coordination with WSDOT and appropriate agencies, such as the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington State Department of Ecology, Washington Department of Fish and Wildlife, Tribes, King County, and cities, will be required to determine the standards to which BMPs and other mitigation measures should be designed or implemented.

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